

Fragment genomic DNA and gel
purify to average size of 0.5-3
kbp

Ligate into plasmid to
get Genomic Library [pTAGL]

Transform into
DH5 α [pTAGL]

Heterogeneous Selective Growth
of overexpression library

Early time point in
selective conditions

Selection for cells bearing
gene inserts providing
growth advantage

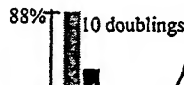
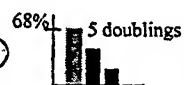
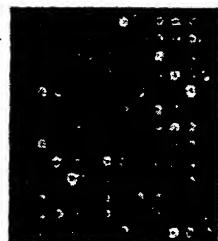
Purify plasmids from time
points throughout growth
in selective conditions

Fragment plasmids and
label with fluorescent
nucleotide

Use DNA micro-array to identify
genes that provided an advantage or
disadvantage throughout selective
growth.

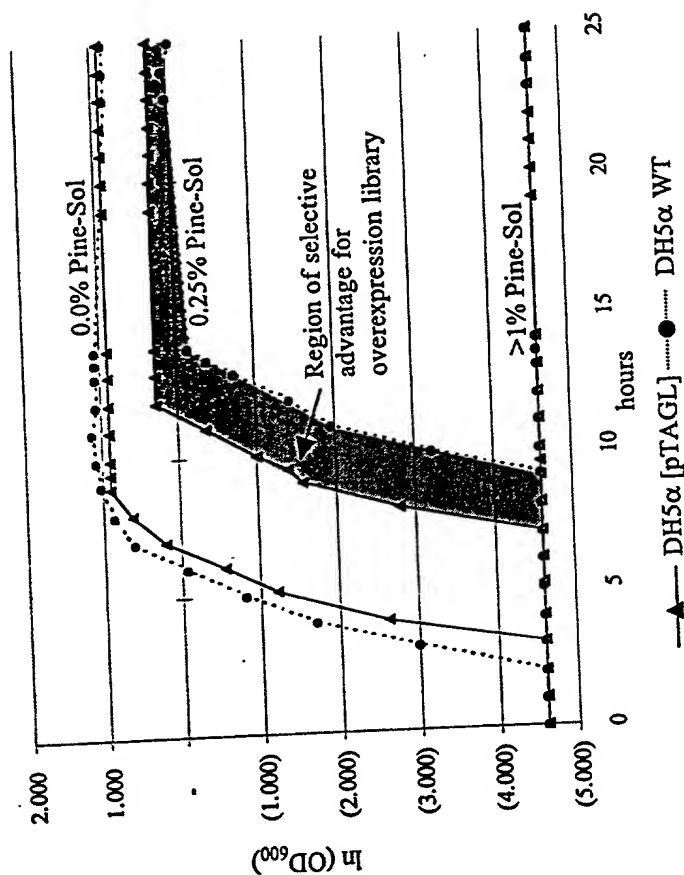
Genomic DNA Plasmid DNA

Cy5 Cy3



Distribution of Inserts

Figure 1



% Pine-Sol	$\Delta OD_{600}^{1,2}$	$\Delta \text{Lag Time (hrs)}^{1,3}$
0.0	12.7%	-0.05
0.1	13.7%	-0.15
0.25	-26.7%	2.96
0.4	-42.8%	1.91

¹ The difference $DH5\alpha - DH5\alpha[pTAGL]$ for final OD_{600} or lag time. All values are averages of repeat measurements. The SD was 10% of the average for the final OD_{600} readings and 6% of the average for the lag time. ² The average OD_{600} throughout stationary phase. ³ The time required to reach an $OD_{600} = 0.10$

Figure 2

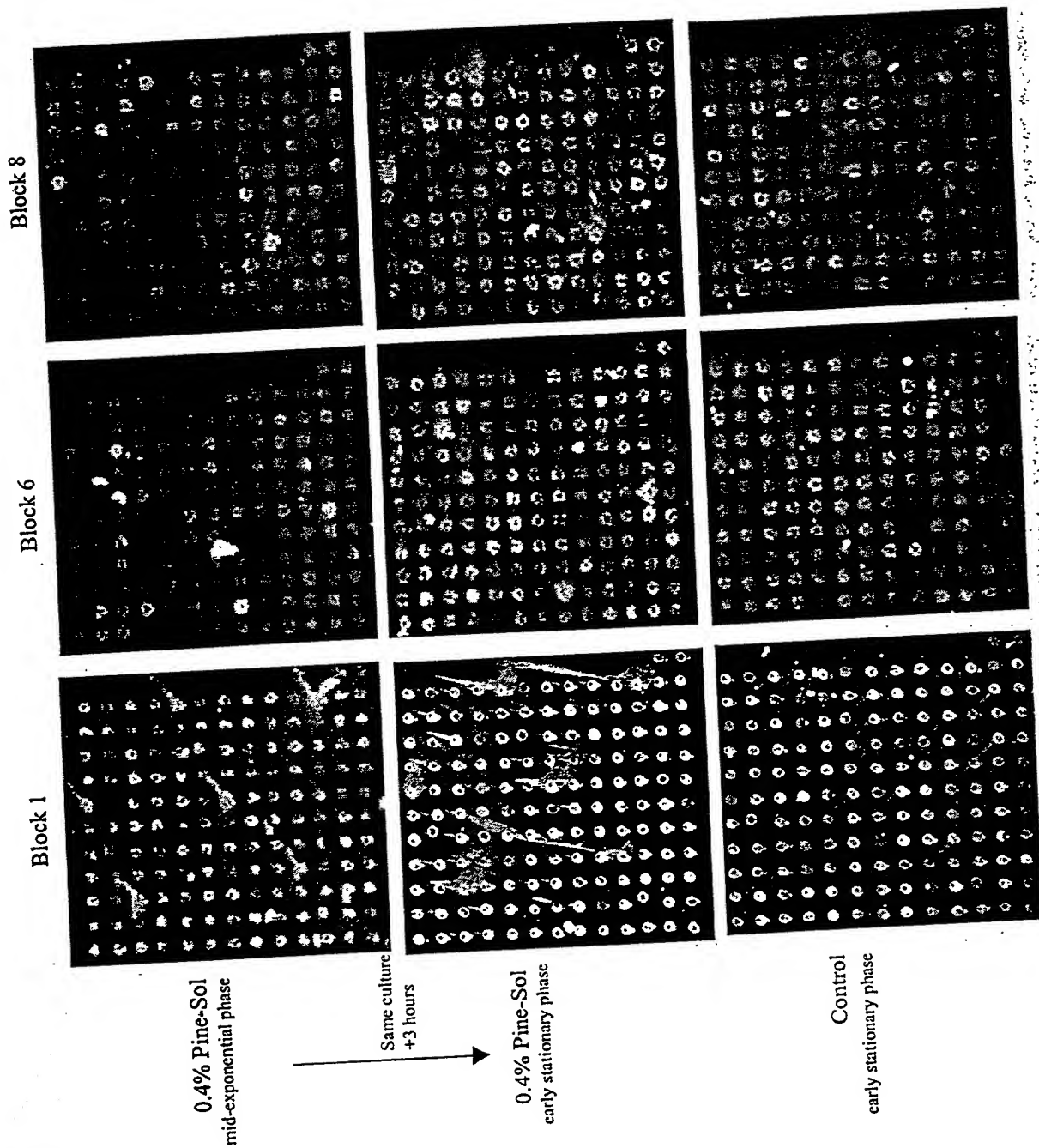


Figure 3

14000

Cy3 Signal

0.4% Pine-Sol

ygcA

sucD *gabD* *pheP*

icaA *idoG* *putA*

lpxD *metR* *pheA*

glnA *cysH* *yhgB*

livG, *livJ*, *filH*, *proA*,
kdsB,
trpE

14000

Cy3 Signal

0% Pine-Sol

0

2000

Cy5 Signal

Figure 4